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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/584,694	05/10/2007	Michael Schorn	601-083	8006

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EXAMINER	
SY, MARIANO ONG	

ART UNIT	PAPER NUMBER
3657	

MAIL DATE	DELIVERY MODE
09/27/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/584,694	SCHORN ET AL.	
	Examiner	Art Unit	
	MARIANO SY	3657	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 July 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. The amendment filed on July 15, 2010 has been received.

2. Claim 1 is objected to because of the following informalities:

Claim 1, line 4 “calliper” should be --caliper--.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1-13, 21, 22, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mori et al. (US 6,367,595).

Mori et al. disclosed a disc-brake having a caliper comprising two side walls which delimit a space to accommodate a portion of a brake disc 19 wherein one of said side walls comprises means for attaching 1a the caliper to a vehicle and the side walls are connected to each other by a connecting structure 18, wherein each of said side walls accommodating at least one pad 13b, wherein the caliper comprises thrust means 12 secured to said side walls, wherein said connecting structure comprises one or more shells, arc-shaped or arranged along an arc, connected so as to be integral with both side walls along outer circumferential edges thereof.

However Mori et al. was silent to disclose wherein the slenderness of said one or more shells expressed as the ratio of thickness to circumferential extension of said one or more shells relative to an axis of rotation of the brake disc is between 5/100 and 17/100; wherein the connecting structure having a radius of 180 mm to 220 mm; wherein the average thickness of the shell is less than 20 mm or between 5 mm to 15 mm; wherein the circumferential extension of at least one of said shells is at least double its axial extension relative to the axis of rotation of the disc; wherein the total area of through opening is less than 40% of the total area of one or more shells including that of the through opening; wherein the slenderness of said one or more shells, including the through opening, expressed as the ratio of thickness to circumferential extension of the through opening relative to the axis of rotation of the brake disc is between 2/100 and 4/100; wherein the slenderness of said one or more

shells in the area of the seatings for the pad, expressed as the ratio of thickness to axial extension relative to the axis of rotation of the brake disc is between 3/35 and 10/35; wherein the slenderness of said one or more shells in the areas of the walls outside the seating for the pads, expressed as the ratio of thickness to axial extension relative to the axis of rotation of the brake disc is between 2/7 and 5/7.

It would have been obvious to one of ordinary skill in the art to provide the caliper of Mori et al. with the above range of limitations as a matter of engineering design choice by increasing the length of the circumferential extension of the left and right bridge portions of Mori's caliper housing, since the above range of limitations are based on some of the factors that depend on the size of the caliper, the number of through openings on the bridge or connecting structure of the caliper housing, the thickness of the bridge, the size of the piston or pistons for the braking torque needed, the size of the brake rotor, the type of application, and the type or composition of material used, in order to provide optimization of the design of the disc brake so as to avoid failure of the caliper housing.

6. Claims 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mori et al. '595 in view of Reeves (WO 03/071151-A1).

Mori et al. disclosed wherein the connecting structure comprises a single shell with a through opening but failed to disclose a substantially circular through opening and also failed to disclose three substantially circular openings equidistant from each other in the circumferential direction and also arranged halfway between the two side

shells; wherein the three openings are arranged substantially in the area of the caliper in which the seatings for the pads are located.

Reeves teaches, as shown in fig. 1, a caliper 10 with connecting structure comprises a single shell with three through openings equidistant from each other in the circumferential direction and also arranged halfway between the two side shells; wherein the three openings are arranged substantially in the area of the caliper in which the seatings for the pads are located.

It would have been obvious to one of ordinary skill in the art to provide the caliper of Mori et al. with three through openings equidistant from each other in the circumferential direction and also arranged halfway between the two side shells; wherein the three openings are arranged substantially in the area of the caliper in which the seatings for the pads are located, as taught by Reeves, and also with substantially circular openings, as a matter of engineering design choice depending upon the type and size of application in order to provide optimization of the design of the disc brake.

7. Claims 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mori et al. '595 in view of Czich et al. (US 4,709,789).

Mori et al. disclose wherein the connecting structure comprises two outer shells arranged at opposite ends of the caliper and the through opening is substantially rectangular. However Mori et al. failed to disclose a central shell arranged approximately halfway between said outer shells, wherein the connecting structure delimits between the central shell and each of said outer shells, a through opening

having a circumferential extension less than the circumferential extension of the adjacent shells.

Czich et al. teaches, as shown in fig. 1, a caliper having a central shell arranged approximately halfway between said outer shells, wherein the connecting structure delimits between the central shell and each of said outer shells, a through opening having a circumferential extension less than the circumferential extension of the adjacent shells.

It would have been obvious to one of ordinary skill in the art to merely provide the caliper of Mori et al. with the known central shell arranged approximately halfway between said outer shells, wherein the connecting structure delimits between the central shell and each of said outer shells, a through opening having a circumferential extension less than the circumferential extension of the adjacent shells, as taught by Czich et al., as a matter of engineering design choice depending upon the type and size of application in order to provide optimization of the design of the disc brake.

8. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mori et al. '595 in view of Czich et al. '789 as applied to claims 6, 17, and 19 above, and further in view of Demoise, Jr. (US 6,039,155).

Mori et al. as modified, failed to disclose wherein the central shell delimits a further through opening arranged approximately at the center of the central shell, said further through opening having a circumferential extension less than that of each of the portions of the central shell.

Demoise, Jr. teaches, as shown in fig. 3, the use of a caliper wherein the central shell delimits a further through opening arranged approximately at the center of the central shell, said further through opening having a circumferential extension less than that of each of the portions of the central shell.

It would have been obvious to one of ordinary skill in the art merely to provide the caliper of Mori et al. with known central shell that delimits a further through opening arranged approximately at the center of the central shell, said further through opening having a circumferential extension less than that of each of the portions of the central shell, as taught by Demoise, Jr., as a matter of engineering design choice depending upon the type and size of application in order to provide optimization of the design of the disc brake.

9. Claims 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mori et al. '595 in view of Way (US 5,558,183).

Mori et al. failed to disclose wherein on the radially outer side of at least one of said shells, a groove is made for accommodating a pipe for fluid to pass between hydraulic cylinders arranged in the two side walls; wherein each of the two side walls delimits three seatings for hydraulic cylinder/piston units; wherein the three seatings are arranged on circumferences with a radius decreasing in the direction of movement of the brake disc corresponding to forward travel of the vehicle.

Way teaches, as shown in fig. 1-3, a caliper wherein on the radially outer side of at least one of said shells, a groove is made for accommodating a pipe for fluid to pass between hydraulic cylinders arranged in the two side walls; wherein each of the two side

walls delimits three seatings for hydraulic cylinder/piston units 16, 17, 18; wherein the three seatings are arranged on circumferences with a radius decreasing in the direction of movement of the brake disc corresponding to forward travel of the vehicle.

It would have been obvious to one of ordinary skill in the art merely to provide the caliper of Mori et al. with known groove made for accommodating a pipe for fluid to pass between hydraulic cylinders arranged in the two side walls and each of the two side walls delimits three seatings for hydraulic cylinder/piston units 16, 17, 18; wherein the three seatings are arranged on circumferences with a radius decreasing in the direction of movement of the brake disc corresponding to forward travel of the vehicle, as taught by Way, in order to provide a rigid attachment for the pipe in order to avoid movement to the joints on the pipe so as to minimize leaks and also the diameter of each piston can be made smaller and the braking force can be distributed thereby reduction in size.

Response to Arguments

10. Applicant's arguments filed on July 15, 2010 have been fully considered but they are not persuasive.

Applicants argued in the Remarks that “the cited prior art, namely, Mori, discloses that the two bridges portions must have a circumferential distance which is greater than the length of the brake pads in order for them to be mounted, fixed and removed, if necessary. Therefore, an increase of the circumferential extension of the connecting structure, which is a pre-condition for obtaining the slender shell as required

by the present claim 1, would invade the space for mounting the brake pads in the Mori reference".

Examiner disagrees the factors for designing the caliper housing depends upon the size and numbers of through openings on the bridge or connecting structure of the caliper housing, the thickness of the bridge, the type or composition of material used, the type of application, and the size of the brake rotor in order to avoid failure of the caliper housing.

With regards to Mori having an opening on the bridge for mounting/ removing of the brake pads, one of ordinary skill in the art would have increase the length of the circumferential extension of the left and right bridge portions of Mori's caliper housing so as to provide an adequate thickness of the bridge, in order to avoid failure of the caliper housing.

Note the prior art gave no indication that the drawings were drawn to scale, therefore the proportions of features in the drawing are not evidence of actual proportions.

Conclusion

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MARIANO SY whose telephone number is (571)272-7126. The examiner can normally be reached on Mon.-Fri. from 8:30 A.M. to 2:30 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Siconolfi, can be reached on 571-272-7124. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/MS/

September 22, 2010

/Robert A. Siconolfi/

Supervisory Patent Examiner, Art Unit 3657